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ABSTRACT

Based on Fiedler's Contingency Model of Leadership Effectiveness and Leader-Match program, this study's hypothesis is that experienced school principals increase their effectiveness by changing key organizational variables to suit their personal leadership styles. Following V. D. McNamara's application of Fiedler's contingency model in a study of elementary school principals, Feidler has suggested that organizational leaders can maximize their effectiveness by manipulating leader-member relations (the extent to which leaders feel liked and accepted by the group), task structure (the degree to which leaders can define and control tasks), and position power (the leader's formally delegated power as distinguished from the ability to inspire loyalty). To test four hypotheses examining the congruence between leadership style and school organizational structure in light of the differences between "open" and "traditional" schools, Faulkner's Description of School questionnaire was distributed to 400 randomly selected schools in 25 Ontario school districts. A one-way analysis of variance computation for the 156 schools finally used in the study supports three of the four hypotheses and confirms the explanatory power of Fiedler's contingency model. Results also indicate, however, that further study is needed of outside social forces as important contingencies for leader effectiveness. (JBM)

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DO PRINCIPALS ENGINEER THE JOB?

by

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Abstract

Do Principals Engineer the Job?

Fiedler's Contingency Model of Organizational Effectiveness suggests that the effectiveness of an organization depends upon particular combinations of leader attributes or behaviors and various organizational variables which indicate whether or not a leader is in a favorable or unfavorable situation. Fiedler further contends that leaders can alter their situation in ways which enhance organizational effectiveness. Based on the latter assumption, a set of hypotheses were derived which stated that experienced elementary school principals would modify the organizational structure of their schools in predictable ways.

In a first study, the correlations between LPC scores and Organizational Inventory scores (a measure of level of bureaucracy in schools) were -.67 in traditional schools and .88 in schools where the educational programs were judged to be "open education" programs.

In the second and larger study, the results were replicated: rho = -.83 and .71 respectively.

The results are related to the literature on contingency models, leader behavior and staff development.

KEY WORDS.

Leadership, contingency model, bureaucracy, open education.

The title for this paper is based on Fiedler's belief that there is sufficient support for his Contingency Model of Leadership Effectiveness that leaders can be trained to alter certain elements in their organizational units such that the resulting situation is one in which they can be most effective (Fiedler, Chemers and Mahar, 1976). Fiedler and his colleagues have reported on successful programs in which leaders are taught to recognize key organizational variables and alter them to suit their personal leadership style. They call the program Leader-Match. Unlike most other leadership training models, they believe that leader style, since it is embedded in one's personality, is not amenable to change after a typical training course. Thus, they suggest that the organization be changed. The hypothesis of the study reported here is that experienced school principals do just that.

Fiedler's Contingency Model

The basic thesis of the Contingency Model is that the relationship between leadership style and group performance is contingent upon the degree to which the leader can influence and control behavior in a group. The model has been extensively described elsewhere (Fiedler, 1967; Fiedler and Chemers, 1974) and will not be described again here. That the model has some validity has been amply demonstrated by Fiedler and his associates (Mitchell, 1970). Controversy was sparked by some reviews which challenged the validity of the model, notably articles by Graen et al. (Graen, Orris and Alvarey, 1971). Validation data from a subsequent experimental study by Chemers and Shrzypek (1972) appear to have met the criteria set by Graen et al., and provide additional validation for the model. Nevertheless, the model was developed inductively without a theoretical basis. The model evolved as one explanation for a body of data. The methodological processes

were often modified on purely pragmatic grounds. The lack of a substantive underlying theory is the major drawback of the model.

The LPC scale. The LPC scale is a 16-item semantic differential scale. Respondents are asked to evaluate their least preferred co-worker. High-LPC persons give a favorable rating of their least preferred co-worker, whereas low-LPC persons give an unfavorable description. The most common interpretation of the LPC score is that it is a measure of social motivation: low-LPC leaders are task-oriented; high-LPC leaders are relationship-oriented (Fiedler, 1974).

As a result of some research and theorizing by McNamara in his attempt to apply the Contingency Model to schools (McNamara, 1968), Fiedler's most recent interpretation of the LPC is that it represents an index of one's hierarchy of motives. One's primary motives follow earlier interpretations. High-LPC persons are relationship-oriented but have a secondary goal of attaining prominence and self-enhancement in the group. Similarly, low-LPC persons are thought to have a secondary goal of achieving good interpersonal relations in addition to the primary goal of task achievement (Fiedler, 1972). Fiedler suggests that when the leader has control of the situation, that is his power and influence are sufficient to assure task achievement, the leader is motivated by his secondary goals. When the situation is relatively stressful, that is the leader has inadequate power and influence, the leader concentrates his energies on primary goals.

Situational favorability. The favorability of the situation depends upon the basis of three dimensions each of which supposedly

affects the degree to which the leader has influence over his group members. These three dimensions are:

1. The affective relations between the leader and his members. A high score means the leader feels liked and accepted by the group (Fiedler and Chemers, 1974, pp. 64-66).

2. The structure of the task. This indicates the degree to which the job can be spelled out and hence controlled by the leader (Fiedler and Chemers, 1974, pp. 66-68).

3. Position power. This represents the formal power at the leader's disposal as distinguished from the power he may have because of his ability to attract or inspire loyalty (Fiedler and Chemers, 1974, pp. 68-69).

Only McNamara's study has seriously examined the situational favorability of schools. His set of expert judges found that elementary schools have unstructured tasks and principals have high position power. McNamara speculates that principals have high position power in managerial functions but less power in instructional areas (McNamara, 1968, p. 208). Thus elementary schools with good leader-member affective relations are favorable leadership situations, and those with poor relations are moderately favorable situations.

McNamara also found that the experience of a principal also modifies situational favorableness in two ways. First, there is a positive correlation between the leader-member affective relationship (group atmosphere or GA) scores and years of experience of the principal in the school (McNamara, 1968, pp. 155-156). Secondly, for principals with

three or more years of experience, the job was rated as a favorable situation, regardless of GA score, whereas for principals with less experience, the job was rated as moderately favorable. Such a solution permitted McNamara to explain his data (McNamara, 1968, pp. 293-299). Fiedler concurred with this interpretation and reported other evidence to support the notion that possessing leadership experience enhances the situational favorability for a leader.

Thus, for a group of experienced principals, an elementary school is a favorable situation, especially if leader-member relations are positive; even if leader-member relations are not positive, the situation will vary between favorable and moderately favorable. According to the model, experienced low-LPC principals will be more effective than experienced high-LPC principals. In interpreting the LPC score as an index of one's hierarchy of motives, low-LPC principals should be oriented toward their secondary goals of good interpersonal relationships.

Engineering the job. Emanating from the Contingency Model of Leader Effectiveness is Fiedler's idea of organizational engineering that has been conceptualized by Fiedler as his theory of Leader Match (Fiedler, Chemers and Mahar, 1976). Fiedler suggests that the leader can maximize his leadership effectiveness by altering his situational control to suit his personality. He alters situational control by manipulating the three variables that determine situational control: leader-member

relations, task structure, and position power.

Fiedler's Contingency Model has been tested in the school situation in many studies (McNamara, 1966, 1968; Hawley in Fiedler, 1972; McKague, 1968; Williams & Hoy, 1971 ; Garland & O'Reilly, 1976).

Although Fiedler's model incorporates three factors that affect the situational favourability for the leader, namely leader-member relations, task structure, and position power, only the first has been examined as a variable in all the studies concerning schools that have been cited. None of these studies examined position power or task structure as a variable.

While leader-member relations is acknowledged to be the most important factor in situational favourability for the leader, task structure is considered to be second in importance in the model (Fiedler, Chemers & Mahar, 1976, p. 79). Surely there is a need for a study of schools that takes task structure into consideration when applying Fiedler's model, particularly in light of the differences in task structure in "open" and "traditional" schools. A description of "open" and "traditional" schools follows to illustrate this very point.

The term "open" schools refers to the philosophical position of the school and not to open architectural design. An "open" school is one whose educational philosophy is that of classroom openness. Classroom openness is defined as: . . . . a construct which flexibly combines all three elements of teacher-centeredness, child-centeredness, and material-centeredness (Walberg & Thomas, 1971, p. 5). In an extensive review of the literature concerning classroom openness, Walberg and Thomas identified eight major dimensions of the Construct:

1. Provisioning for learning - flexibility in organization of instruction and materials

2. Diagnosis - emphasis on child's development rather than examination scores

3. Instruction - more individual attention and choice

4. Evaluation - individual standards emphasized. Record-keeping evaluates pupil growth rather than correctness

5. Humaneness - respect for children, openness, warmth

6. Opportunities to promote growth - use of community, colleagues, and advisors

7. Assumptions - children's innate curiosity and ability to make decisions

8. Self-perception of the teacher - resource for helping children rather than disseminator of body of knowledge

(Walberg & Thomas, 1971, p. 115).

Open classrooms generally have a number of characteristics in common. There are usually a number of work spaces arranged to accommodate a diversity of learning experiences. The children usually move about freely using many available resources to answer their questions with or without teacher guidance. They may work as individuals or in groups of different sizes. Rarely would all the pupils be working at the same activity for the same length of time. Rarely would all the pupils be using the same textbook or would the teacher assign the same task to all pupils. The teacher's role is that of facilitator of learning rather than the dispenser of knowledge or transmitter of learning.

In contrast, a "traditional" school tends to operate in a much more prescriptive, rigid, uniform, and standardized manner. All pupils would use the same books and materials for the same assignment. If there are groups in some subject areas such as reading, this grouping would tend to be the same for a considerable period of time. Tasks tend to be teacher assigned and, in fact, teacher centered. The teacher is seen as the dispenser of knowledge, giver of learning, or transmitter of culture.

Because of the different philosophies underlying the two types of schools, and because of the different role expectations for the teachers in these schools, these two types of schools operate quite differently. It is apparent from the point of view of task structure in terms of Fiedler's model that there should be an assumed difference of task structure in their daily operation.

The three contingency factors in Fiedler's model can be related to the concept of bureaucracy.

Hall (1963) isolated six fundamental characteristics of Weber's concept of the formal organization (Weber, 1968) and incorporated them into an instrument he called an Organizational Inventory. These six fundamental characteristics were:

1. a division of labour based on functional specialization
2. a well-defined hierarchy of authority
3. a system of rules covering the rights and duties of positional incumbents
4. a system of procedures for dealing with work situations
5. impersonality of interpersonal relations
6. promotion and selection for employment based upon technical competence.

Punch (1967) used a factor analysis technique to show factorial homogeneity for four of Hall's bureaucratic dimensions as applied to schools. He rejected "specialization" and "technical competence" in the school situation as being non-discerning dimensions because of the nature of teacher training and qualifications.

The four dimensions that Punch used in his refined Organizational Inventory are reflected in Fiedler's contingency factors: power of the leader is enhanced and task is assumed to be structured and position power. Punch found that the principal's behaviour was the major determinant of school bureaucratization; accounting

for 75% of inter school variation on this dimension.

If Fiedler's "Leader-Match" suggestion and Punch's findings about a principal's ability to change his school's organizational structure are correct, then a principal will tend to change the organizational structure of the school to make the situation more favourable to his leadership style as dictated by his personality and motivational structure. Consequently, there should be a significant relationship between Fiedler's Least Preferred Co-worker scores and the degree of bureaucratization as measured by the Organizational Inventory for certain octants in Fiedler's Contingency Model.

McNamara (1968), McKague (1968), Fiedler (Fiedler & Chemers, 1974, p. 133), and Martin (1976) all agree that the principal has strong position power. McNamara (1968) and McKague (1968) claimed that the task is unstructured in schools. Fiedler (Fiedler & Chemers, 1974) feels that the task of school staff is structured. In this study, task structure will be considered high in "traditional" schools and low in "open" schools. The criterion for judging a school "traditional" or "open" will be its score as measured by the "Description of School" questionnaire. Leader-member relations will be determined by scores on the Group Atmosphere questionnaire.

Schools with good leader-member relations as determined by Group Atmosphere questionnaire scores, and that are either "traditional" or "open" as measured by the "Description of School" will be classified as high in terms of situational control in Fiedler's model. Similarly schools with poor leader-member relations as determined by Group Atmosphere questionnaire scores, and that are "traditional" as measured by the "Description of School" will be classified as moderate in situational control while schools with poor leader-member relations

that are "open" will be classified as low in situational control in the Fiedler model.

Four hypotheses examining the congruence between leadership style and the organizational structure of the school are:

1. In "traditional" schools as measured by the "Description of School" (DS) with good leader-member relations as measured by the Group Atmosphere questionnaire (GA) there will be a significant positive relationship between Least Preferred Co-worker (LPC) and Organizational Inventory (OI) scores.

2. In "open" schools as measured by the DS, with good leader-member relations as measured by the GA there will be a significant positive relationship between LPC and OI scores.

3. In "traditional" schools as measured by the DS with poor leader-member relations as measured by the GA there will be a significant negative relationship between LPC and OI scores.

4. In "open" schools as measured by the DS with poor leader-member relations as measured by the GA there will be a significant negative relationship between LPC and OI scores.

The Instruments

The Organizational Inventory was used to measure the extent of bureaucracy in the school's organizational structure. This scale is based on the work of Hall (1963, pp. 32-40) and modified by Punch (1967) to include the Weberian scales I, III, IV, and V and to exclude scales II and VI which probably measure "professionalism". Punch calculated split-half reliability coefficients for the four sub-scales and concluded that they were acceptable. The instrument has been used in several studies which seem to demonstrate its usefulness as a research instrument.

The Least Preferred Co-worker Scale has been developed by Fiedler and used over nearly three decades of research as already described. LPC scores have a high internal consistency with split-half coefficients of over .90. The scores are reasonably stable over time, at least as stable as other attitude measures.

Garland & O'Reilly obtained a value of .64 (n=35) for secondary principals over a six week period. Mcnamara obtained a test-retest coefficient of .45 (n = 32) for elementary principals over a period of 18 months (McNamara, 1968, p. 195).

The Group Atmosphere Scale (GA) was used to measure principal-teacher relations. The Group Atmosphere Scale was devised by Fiedler to test the degree to which a leader feels accepted by the group. The instrument, modeled after the Least Preferred Co-worker scale, consists of 10 bipolar adjective items which are highly intercorrelated (Fiedler, 1967, p. 32). Each of the items is scored by assigning a value on an 8-point scale. The GA score is calculated by summing the item scores.

The internal consistency of Group Atmosphere scores seems high. Fiedler (1967) reported intercorrelations of scores among three sessions with Belgian naval leaders of .76, .73, and .83.

McNamara (1968) reported a test-retest coefficient of .42 (n = 31) for elementary principals over a period of 1½ years; Garland & O'Reilly (1976) obtained a coefficient of .67 (n=35) over a six week period.

The Description of School questionnaire (DS) was designed to differentiate between "open" and "traditional" schools. Open education is a complex construct that is a flexible mixture of child-centered, teacher-centered, and materials-centered approaches. Diversification, humaneness, activity, experience, and quality are some of the key elements.

Traub et al. (1972) attempted to describe open education and define the terms used by the authors. They developed an instrument for measuring openness of a school program which, through several prototypes, ended up as the Dimensions of Schooling Form III (DISC III).

This is a fairly massive 32-page inventory that uses a complicated weighted scale for scoring. Because it is unwieldy and time-consuming to administer, it has found relative disfavour in the eyes of those who have attempted to use it (Traub et al., 1972, p. 81).

The Description of School questionnaire was designed by Faulkner (1977) as an instrument that would differentiate between "open" and "traditional" schools without being unwieldy and time-consuming to administer. It incorporates the sections of the DISC III that conform to Walberg and Thomas' (1971) eight dimensions of open education. Basically, it consists of a short, 12-item questionnaire with three to five multiple choice responses for each item. In this study it was scored by summing the doubled scores of item responses. The range of possible scores is 24 to 94.

Because the Description of School is based on Walberg and Thomas' (1971) eight dimensions of open education, it has content validity. Faulkner (1977) also reported that when 10 schools were rated by their Superintendent of Schools on degree of openness, their scores when compared to DS scores gave a Pearson correlation of .89 which is significant at the 95% confidence level. The scores seem reasonably stable over time. A test-retest procedure conducted for 14 teachers in five schools over an 8-week period yielded a Pearson product-moment correlation of .79.

The Sample

Four hundred schools were randomly selected for study in 25 county or district school boards in Ontario. All principals were in

their schools 2 years or more. Three quarters of them had been principals for over 10 years.

Description of the Data

The GA for the school was obtained by summing the scores on the 10 items. Scores on the GA ranged from 40 to 80 with a mean of 68.3. The suggested median score of 65 from reported normative data (Posthuma, 1970, p. 12) was used as the cut-off point to differentiate between schools having good or poor leader-member relations. All schools scoring 66 or above were considered to have high GA or good leader-member relations. Schools scoring 65 or below were considered to have low GA or poor leader-member relations.

The DS score for each school was obtained by calculating the mean score of the teachers that responded to the questionnaire in that school. The means of DS scores (or school scores) ranged from 35.0 to 72.0 with a mean for all schools of 53.6. From the distribution of scores, 61.0 was taken as the cut-off point for "open" schools. All schools with DS scores of 61.0 or higher were considered "open" while those with DS scores of 58.0 or lower were considered "traditional". Scores of between 58.0 and 61.0 were not used in the study.

Schools were classified as Type I, II, III, or IV schools in terms of their GA and DS scores. Schools with GA scores of 66 or higher, and DS scores of 61.0 or higher, that is "open" schools with good leader-member relations, were classified as Type I. These schools, which probably correspond to octant III on the Contingency Model continuum, offered the principal high situational control. Schools with GA scores of 66 or higher and DS scores of 58.0 or lower, that is "traditional" schools with good leader-member relations, were

classified as Type II. These schools, which are about octant I of the continuum, offered the principal high situational control. Schools with GA scores of 65 or lower, and DS scores of 58.0 or lower, that is "traditional" schools with poor leader-member relations, were classified as Type III. These schools, which probably correspond to octant V on the favourability continuum, offered the principal moderate situational control. Similarly, schools with GA scores of 65 or lower, and DS scores of 61.0 or higher, that is "open" schools with poor leader-member relations, were classified as Type IV. These schools, which probably correspond to octant VII of the Contingency Model favourability continuum, offered the principal low situational control.

The bureaucracy score for each teacher was the sum of all responses to the OI items. The bureaucracy score for a school was obtained by calculating the mean score of the respondents within the school. If only one teacher responded in a school, the data from the school were considered incomplete, and not used in the study. OI scores for schools ranged from 61.0 to 123.7 with a mean of 92.5.

Each principal's LPC score was calculated by summing the scores on the 16 items. Scores on the LPC ranged from 23 to 128 with a mean of 62.2. Principals who obtained LPC scores of 64 or above were considered high LPC leaders while those who obtained LPC scores of 57 or below were considered low LPC leaders. Principals who obtained LPC scores of between 58 and 63 were considered borderline (Fiedler et al., 1976, p. 22) or neither high nor low LPC leaders, and were not used in the study.

In all, 156 schools were used in the analysis.

Statistical Analysis

A one-way analysis of variance was computed for the mean Description of School scores of "traditional" and "open" schools in

each of the four types of schools studied and appropriate post-hoc procedures were carried out on the results to ensure that the schools were indeed significantly different in degree of openness.

Spearman rank-order correlation coefficients between LPC and OI scores were calculated for each school type.

Results

A one-way analysis of variance and the Scheffe Method of Multiple Comparisons technique indicated that schools classed as "open" did indeed differ significantly from the schools classed as "traditional" in respect to scores on the Description of School scale.

All results for the Spearman rank-order correlation coefficients between LPC and OI for each school type are given below in Table 1.

Table 1

School type	Spearman Rank Order correlation	N	Hypothesis Supported
I	0.705 *	21	Yes
II	-0.828 *	81	No
III	-0.592 *	45	Yes
IV	-0.750 *	9	Yes

* $p < .05$

Discussion of Results

All the hypotheses except the one related to good GA, "traditional" schools were supported. In the unsupported case, the correlation was significant but opposite to the direction predicted. Since the situation in these schools should have afforded the principals the highest degree of situational control in the context of Fiedler's model, they would be expected to follow their secondary motivational goal needs. Instead, they appear to be

following their primary motivational goal needs. One plausible explanation for this observed behaviour is that there was present an unacknowledged source of stress which transformed the situation from favourable to moderately favourable. This stress, it is suggested, emanates from the pressure produced by reduced resources, the need to be accountable, and declining enrolments.

The observed tendency of experienced principals to alter the organizational structure of their schools suggests that they are attempting to modify situational control in a manner consistent with Fiedler's Leader-Match concept whereby leaders alter their situation to one in which they can be most effective, theoretically.

Conclusions

Three of the four hypotheses were supported. Calculated correlations between LPC and OI scores were significant and in the predicted direction. The first hypothesis was not supported. While the calculated correlation between LPC and OI scores was statistically significant, it was in the opposite direction to that predicted.

If "open" schools with good leader-member relations are considered less stressful situations than "traditional" schools or "open" schools with poor leader-member relations, and Fiedler's explanation of leader behaviour in terms of needs satisfaction of primary and secondary goals for two different motivational systems under stressful and non-stressful conditions as perceived by the leader is taken into account, then the results are explainable in terms of Fiedler's Contingency Model.

In "traditional" schools with either good or poor leader-member relations, low LPC principals tended to structure internal organization more bureaucratically than did high LPC principals.

In "open" schools with good leader-member relations, high LPC principals tended to structure internal organization more bureaucratically than did low LPC principals. In "open" schools with poor leader-member relations the reverse was true with the low LPC principals tending to organize their schools more bureaucratically than the high LPC principals did.

Many of the organizational engineering schemes fail to recognize, as Fiedler does, factors outside the organization itself. This weakness reduces their usefulness since some organizations, such as school systems, do not operate in a vacuum, free from outside influences. For instance, the findings of this study seem to indicate that environmental or outside factors may be important contingencies for leader effectiveness in that they may impose or alter situation stressfulness.

These findings could have practical applications in both principal training programs, based on the organizational engineering concept, and in principal selection for a particular school situation.

This study indicates that more study in this area would be warranted. Better understanding of the relationship between LPC scores and school organization, with the factors of situation stressfulness, experience of the principal, more precisely measured leader-member relations, and principal effectiveness taken into account, could lead to even better application of the organizational engineering technique and to more careful principal selection for a particular school assignment.

EPILOG

Rice has stated that the Fiedler Model can explain much but not all of the data (Rice, 1975). We have speculated in this paper that outside social forces can alter an organizational situation to produce stress. Such an environmental variable can be conceptualized and operationalized. But it would be more productive to examine the impact of such stress on the internal processes of the organization. I suspect that the rule of Occam will push us to look for a better explanation of the data within the Model and within the school.

Faulkner conducted an earlier study in which the relationships between LPC and bureaucracy in open and traditional schools were again examined. The variable of leader-member relations was ignored, and all the principals were experienced. In that study the two groups of principals were in favorable situations. The rho between LPC and bureaucracy scores in traditional schools was - .67 (n=21) and in open schools was .74 (n=8). The present study replicated the results.

An intensive search has been made of the literature to discover what are some of the organizational influences of open and traditional schools on the behavior of principals. There is an abundant literature on open education, open classrooms and pupil-teacher interaction. There is nothing on the administrator's role. What is there about such roles that would provoke principals to reverse their administrative behaviors? The answer to that will tell us much about the Contingency Model and about leadership in schools.

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